

# **【CLAIMS】**

**【Claim 1】** A self-closing apparatus for a slide comprising:

a pair of springs;

5 a moving pin comprising a support pin portion having a cylindrical shape, a support plate, and a guide protrusion;

a moving pin guide comprising a moving pin guide slot and first coupling means, the moving pin guide slot comprising a pin-receiving inlet portion defined by two inlet surfaces, and a pin engaging portion defined by three engaging surfaces;

10 a movable member including a plate portion centrally provided with a hole, sliding rods formed integrally with the plate portion, and spring support portions to which first ends of the springs are respectively coupled; and

15 a plate-shaped fixed member comprising a support base comprising spring support portions, to which second ends of the springs are respectively coupled, an extension bar comprising movable member sliding portions respectively formed at opposite longitudinal sides of the extension bar, and a moving pin guide portion formed at an intermediate portion of the extension bar, a head, and second coupling means,

wherein each sliding rod of the movable member comprises a protrusion and a sliding groove;

20 wherein the moving pin guide portion of the fixed member comprises a rectilinear guide portion and a curved guide portion;

wherein the moving pin is slidably coupled to the moving pin guide portion of the fixed member;

25 the movable member sliding portions of the fixed member are slidably engaged with the sliding grooves of the movable member under a condition in which the support pin portion of the moving pin is inserted in the hole of the movable member, so that the moving pin moves integrally with the movable member along the moving pin guide portion of the fixed member when the

movable member slides along the movable member sliding portions of the fixed member;

5 wherein the moving pin guide is fixed to a movable rail of the slide by the first coupling means such that the moving pin guide is moved together with the movable rail; and

wherein the fixed member is fixed to a fixed rail of the slide by the second coupling means.

10 **【Claim 2】** The self-closing apparatus as set forth in claim 1, wherein the hole formed in the plate portion of the movable member has a length corresponding to a transversal length of the moving pin guide portion of the fixed member.

**【Claim 3】** The self-closing apparatus as set forth in claim 1, wherein the movable pin guide slot further comprises an engagement groove formed at one of three engaging surfaces of the pin engaging portion.

15 **【Claim 4】** The self-closing apparatus as set forth in claim 1, wherein each of the springs has the tapered portions respectively formed at a portion near the end of the spring.

**【Claim 5】** The self-closing apparatus as set forth in claim 1, wherein the first coupling means comprises a hole in which a coupling protrusion of the movable rail is fitted, and the second coupling means comprises riveting holes.

20 **【Claim 6】** The self-closing apparatus as set forth in claim 1, wherein the extension bar of the fixed member further comprises a buffering space connected to

the rectilinear guide portion of the moving pin guide portion while extending parallel with the rectilinear guide portion, a support protrusion formed between the moving pin guide portion and the buffering space, and a twist preventing protrusion formed at the support protrusion and adapted to prevent the support protrusion from twisting.

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【Claim 7】 The self-closing apparatus as set forth in claim 1, wherein the moving pin guide further comprises elastic blocks respectively formed at opposite longitudinal sides of the moving pin guide, and buffering grooves respectively formed around the elastic blocks, the elastic blocks being diverged from each other to have elasticity.

【Claim 8】 The self-closing apparatus as set forth in claim 1, wherein the extension bar of the fixed member further comprises protrusions respectively arranged close to and in parallel with the movable member sliding portions .

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【Claim 9】 The self-closing apparatus as set forth in claim 1, wherein the moving member further comprises a movable rail support formed on a surface of the movable member, and adapted to support the movable rail

【Claim 10】 The self-closing apparatus as set forth in claim 9, wherein the movable rail support comprises support bars formed integrally with the movable member, and support flanges respectively formed at free ends of the support bars.

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【Claim 11】 A slide comprising:  
a fixed rail;

two movable rails;

ball retainers each located between adjacent ones of the rails, and adapted to operatively connect the adjacent rails such that the movable rails are slidable; and a self-closing apparatus as set forth in any one of claims 1 to 10.

5       **【Claim 12】**     The slide as set forth in claim 11, wherein one of the movable rails comprises a rail groove for receiving a part of the self-closing apparatus.

**【Claim 13】**     The slide as set forth in claim 11, wherein the slide comprises a fixed rail, a movable rail, and a ball retainer located between the rails, and adapted to operatively connect the rails such that the movable rails are slidable.

10       **【Claim 14】**     The slide as set forth in claim 11, wherein the slide is a slide for a Kimchi refrigerator.